



Caltrans Division of Research,
Innovation and System Information

Research Results

Modal

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Project Title:

Smart Parking Value Pricing Pilot
Program at COASTER Stations

Task Number: 1737

Completion Date: September 30, 2011

This project investigated commuter behavior and smart parking technologies at transit stations to develop solutions that increase ridership.

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Increasing Transit Use with Smart Parking

Employing innovative smart parking technologies and strategies to increase the use of mass transit and reduce vehicle emissions

WHAT WAS THE NEED?

Lack of parking as well as lack of knowledge of parking availability at commuter rail and transit stations contribute to suboptimal use of transit systems and highway congestion. In the San Diego area, parking had been at or near capacity at many of the COASTER commuter train parking facilities. To not deter ridership, smart parking management technologies were field-tested to cost-effectively address the immediate parking constraints and to develop longer term strategies to expand parking options in the future.

Smart parking incorporates technology and software tools to increase the efficiency and accessibility of parking facilities. It can help users locate parking spaces to reduce idling and frustration, provide real-time information on parking conditions, and allow drivers to reserve spaces and make electronic payments. If adequate transit parking areas are readily available, commuters have an incentive to use mass transit. Innovative smart parking technologies and strategies contribute to alleviating traffic congestion, reducing vehicle emissions, and improving air quality.

WHAT WAS OUR GOAL?

This project's goal was to analyze commuter behavior and use smart parking technologies to design solutions that increase mass transit use.



The North County Transit District COASTER commuter train in San Diego County, California



Caltrans improves mobility across California by performing applied research, developing innovations, and implementing solutions.

WHAT DID WE DO?

Caltrans, in partnership with the UC Berkeley Institute of Transportation Studies, the San Diego Association of Governments (SANDAG), the North County Transit Agency (NCTD), and ParkingCarma, implemented a pilot project to better understand and ultimately increase COASTER rail line ridership by making parking more efficient using smart parking technology.

The pilot investigated offering reserved premium parking as a means to increase revenue to build more parking areas and add trains, generating more riders per parking space by encouraging carpooling by providing preferential parking, and restricting parking of non-COASTER riders. In addition, information on the real-time availability of parking was made available via the ParkingCarma reservation site and integrated with the 511 traveler information system.

As part of the pilot, the researchers conducted a survey at all stations and parking lots along the COASTER line on the correlation of parking pricing and fares and public transit use. The survey was broken into two groups: Drivers (people who parked at COASTER parking lots, whether they rode COASTER or not) and nondrivers (those who did not drive to a COASTER station).

WHAT WAS THE OUTCOME?

During the project timeframe, a downturn in the economy lowered ridership and parking demand, which affected the utilization of the parking reservation system. Consequently, the survey responses suggested caution in implementing a new pricing policy. The survey indicated that, with the exception of one station, COASTER parking lots were generally used by COASTER riders. The results showed that COASTER is reducing the need for automotive ownership and driving: 16% of drivers and 30% of nondrivers indicated that if COASTER were not available, their household would have to purchase another car. If COASTER was not available, 71% of drivers and 38% of nondrivers said that they would drive to their destination.

The report includes an analysis of the financial impact of different pricing scenarios on COASTER revenue based on the survey data and recommendations for the existing economic climate. At overcrowded parking facilities, pricing is a strong tool for allocating demand efficiently and recovering the operational costs of parking, and it is also more fair for riders who use alternate access modes. With improved decision-making tools, transit agencies can analyze parking investments to examine the tradeoffs of expansion, advanced parking management systems, and real estate development.

WHAT IS THE BENEFIT?

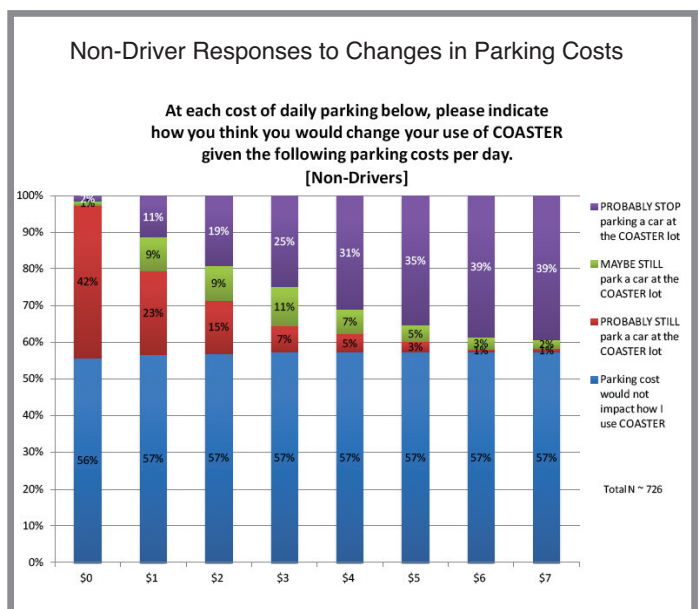
Public transit agencies need to be able to ebb and flow with the economic situation. Advances in sensor, payment, and enforcement technologies help operate parking facilities more efficiently, enhancing customer parking experiences, increasing the supply of existing parking with minimal investment, and raising ridership and overall revenue. Smart parking systems can further expand ridership by generating revenue to add parking capacity and improve access. Advanced parking management systems make transactions easier for customers, gather useful data for improving parking management, and help with enforcement.

A public transit business model that incorporates smart parking technologies reduces commuter time and frustration, encourages transit ridership, reduces pollution, congestion, and fuel consumption, optimizes the existing parking infrastructure, and increases revenue to communities and transit properties.

LEARN MORE

To view the complete report:

<http://tsrc.berkeley.edu/sites/tsrc.berkeley.edu/files/San%20Diego%20Smart%20Parking%20Pilot%20COASTER%20Final%20Report.pdf>



The graph shows that as parking prices increase, more commuters will probably stop parking a car at a COASTER station. In the middle parking price range, the share of commuters "maybe" parking at a COASTER station grows and then decreases. As parking prices rise to relatively high levels, there is more certainty in commuter reactions.